gases should be somewhere between 200° and 300° C. Frequently it is much higher.

Another point to be considered in connection with gas velocities arises from the fact that the carrying power of the flowing stream varies with the sixth power of its velocity. The heavier particles

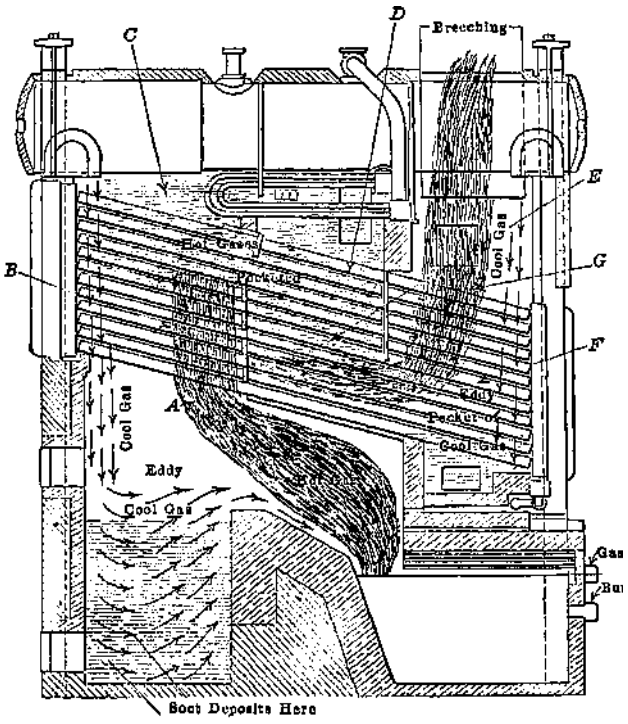

FIG. 170.

Diagram showing the flow of gases in a B. & W. type boiler with special setting. This boiler is gas fired. Temperature observations made in this setting by the Bureau of Mines are shown in Figs. 171, 172 and 173. The observations of temperatures made by the bureau indicate that the flow of the gases follows the laws of hydraulics. The hot gases behaving in the same manner as an inverted stream of water. By looking at this cut from the top instead of the bottom of the page this analogy may be clearly seen.

are more readily thrown out of the stream into the eddies where changes of direction occur. Soot blowers and the steam lance are employed to rid the heating surface of this dirt, soot, etc., instead of attacking the root of the trouble and thereby eliminating it, or at least reducing it to a minimum. The usual methods of